L Number	Hits	Search Text	DB	Time stamp
1	16	moskal NEAR joseph	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/10 14:11
2	913	glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/10 14:11
3	6	((glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)) and brain) and (glioma or meningioma).clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/10 14:12
4	12	(US-6121233-$ or US-6194158-$ or US-6440676-$ or US-6274314-$ or US-5798244-$ or US-6566060-$).did. or (US-20020128221-$ or US-20020197695-$).did. or (WO-9743306-$ or WO-9924584-$).did. or (WO-9924584-$ or WO-9738109-$).did.	USPAT; US-PGPUB; EPO; DERWENT	2003/11/10 14:14
5	33	glycosyltransferase$5.clm. and (brain or glioma or meningioma)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/10 14:15
6	1	glycosyltransferase$5 WITH glioma	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/10 14:16
7	0	ST3gal SAME glioma	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/10 14:16
8	1	glycosyltransferase$5 SAME glioma	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/10 14:16
9	2	glycosyltransferase$5.clm. and (glioma or meningioma)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/11/10 14:16
-	1283	glycosyltransferase$5	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/22 13:01
-	187	(glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)) and brain	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 11:52
-	45	(glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)) and (glioma or meningioma)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:09
-	40	((glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)) and brain) and (glioma or meningioma)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:12
-	137	glycosyltransferase$5.clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:07
-	177	glycosyltransferase$5.clm. or (((glycosyltransferase$5 and (cancer or neoplas$5 or tumor or tumour)) and brain) and (glioma or meningioma))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:09
-	385	(glioma or meningioma).clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:15

-	8	(US-6121233-$ or US-6440676-$ or US-6274314-$ or US-6194158-$).did. or (US-20020197695-$ or US-20020128221-$).did. or (WO-9743306-$).did. or (WO-9924584-$).did.	USPAT; US-PGPUB; EPO; DERWENT	2003/02/21 12:24
-	2	("5798244").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 14:40
-	2	("6017743").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 14:42
-	2	WO NEAR "9738109"	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/22 12:47

(FILE 'HOME' ENTERED AT 14:18:09 ON 10 NOV 2003)

FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, MEDICONF' ENTERED AT 14:19:41 ON 10 NOV 2003

L1 15636 S SIALYLTRANSFERASE? OR GLYCOSYLTRANSFERASE
L2 101320 S GLIOMA OR MENINGIOMA OR (BRAIN CANCER?)
L3 101 S L1 (L) L2
L4 43 DUP REM L3 (58 DUPLICATES REMOVED)
L5 43 SORT L4 PY

=> d an ti so au ab pi l5 36 25 26 30 31 32 34 38 39

L5 ANSWER 36 OF 43 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN
AN 1999:964692 SCISEARCH
TI Inhibition of **glioma** invasivity and tumor formation by manipulation of specific **glycosyltransferase** gene expression.
SO CLINICAL CANCER RESEARCH, (NOV 1999) Vol. 5, Supp. [S], pp. 63-63. Publisher: AMER ASSOC CANCER RESEARCH, PO BOX 11806, BIRMINGHAM, AL 35202. ISSN: 1078-0432.
AU Yamamoto H (Reprint); Oviedo A; Kersey D; Sweeley C; Hurh J; Kroes R; Mkrdichian E; Leestma E; Cerullo L; Moskal J

L5 ANSWER 25 OF 43 CANCERLIT on STN
AN 96653457 CANCERLIT
TI Galbeta1,4GlcNAc alpha2,6 **sialyltransferase** (alpha2,6-ST) gene transfection alters the integrin-mediated invasivity of the human **glioma** cell line U-373MG (Meeting abstract).
SO Proc Annu Meet Am Assoc Cancer Res, (1996) 37 A436. ISSN: 0197-016X.
AU Yamamoto H; Kaneko Y; Rebbaa A; Kersey D; Bremer E; Moskal J
AB The invasion of malignant **glioma** cells into normal brain tissue is a major cause of morbidity and death for brain tumor patients. Increases in cell-surface sialoglycoconjugates play an important role in carcinogenesis. We have examined the expression of alpha2,3-**sialyltransferase** (alpha2,3-ST) and alpha2,6-**sialyltransferase** (alpha2,6-ST) in human brain tumor specimens and found that the terminal sialylation of N-linked glycoproteins in **gliomas** appears to be mediated by alpha2,3-ST. We have altered the terminal sialylation of a tumorigenic human **glioma** cell line, U-373MG, by alpha2,6-ST gene transfection. The transfected **glioma** cells express alpha2,6-ST and alpha2,6-linked sialoglycoproteins on their cell surfaces and show a marked reduction in alpha3beta1 integrin-mediated adhesion to extracellular matrix proteins and in vitro invasiveness compared to controls. Furthermore, the alpha2,6-ST transfection results in a reduction of adhesion-mediated protein tyrosine phosphorylation despite a marked induction of the integrin-mediated signaling molecule, focal adhesion kinase, p125FAK. Thus, changes in the terminal sialylation can have a marked effect on alpha3beta1 integrin-mediated **glioma** invasivity and suggest an approach to alter the invasivity of **glioma** cells by **glycosyltransferase** gene transfections.

L5 ANSWER 26 OF 43 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN
AN 96:861428 SCISEARCH
TI The effect of **glycosyltransferase** gene transfection on integrin-mediated **glioma** invasivity.
SO GLYCOBIOLOGY, (OCT 1996) Vol. 6, No. 7, pp. G1-G1. Publisher: OXFORD UNIV PRESS UNITED KINGDOM, WALTON ST JOURNALS DEPT, OXFORD, ENGLAND OX2 6DP. ISSN: 0959-6658.
AU Yamamoto H (Reprint); Saito T; Rebbaa A; Kersey D; Swoger J; Kroes R; Bremer E; Moskal J

L5 ANSWER 30 OF 43 MEDLINE on STN
AN 97309339 MEDLINE
TI alpha2,6-**Sialyltransferase** gene transfection into a human **glioma** cell line (U373 MG) results in decreased invasivity.
SO JOURNAL OF NEUROCHEMISTRY, (1997 Jun) 68 (6) 2566-76. Journal code: 2985190R. ISSN: 0022-3042.
AU Yamamoto H; Kaneko Y; Rebbaa A; Bremer E G; Moskal J R

AB **Glycosyltransferase** gene transfection into cell lines has been an approach used successfully to elucidate the functional role of cell surface glycoconjugates. We have transfected the rat CMP-NeuAc:Galbeta1,4GlcNAc alpha2,6-**sialyltransferase** (EC 2.4.99.1) gene into a human, tumorigenic, **glioma** cell line, U373 MG. This transfection led to a marked inhibition of invasivity, alterations in adhesivity to fibronectin and collagen matrices, and inappropriately sialylated alpha3beta1 integrin. Adhesion-mediated protein tyrosine phosphorylation was reduced in the transfectants despite increased expression of focal adhesion kinase, p125fak. Furthermore, the transfectants showed a distinct cell morphology, an increased number of focal adhesion sites, and different sensitivity to cytochalasin D treatment than control U373 MG cells. These results suggest that inappropriate sialylation of cell surface glycoconjugates, such as integrins, can change focal adhesion as well as adhesion-mediated signal transduction and block **glioma** cell invasivity in vitro.

L5 ANSWER 31 OF 43 MEDLINE on STN
AN 97306089 MEDLINE
TI alpha2,3-**sialyltransferase** mRNA and alpha2,3-linked glycoprotein sialylation are increased in malignant **gliomas**.
SO BRAIN RESEARCH, (1997 Apr 25) 755 (1) 175-9.
Journal code: 0045503. ISSN: 0006-8993.
AU Yamamoto H; Saito T; Kaneko Y; Kersey D; Yong V W; Bremer E G; Mkrdichian E; Cerullo L; Leestma J; Moskal J R
AB CMP-NeuAc: Galbeta1,3(4)GlcNAc alpha2,3-**sialyltransferase** (alpha2,3-ST) mRNA was expressed in human **glioma** specimens, human fetal astrocytes, and a panel of brain tumor cell lines. Maackia amurensis agglutinin staining revealed the presence of alpha2,3-linked sialic acids on **glioma** cell surfaces and extracellular matrices whereas normal human adult astrocytes were negative. Increased expression of alpha2,3-linked glycoprotein sialylation may play a role in glial tumorigenesis.

L5 ANSWER 32 OF 43 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1998:153962 CAPLUS
DN 128:268907
TI **Glycosyltransferase** activities in 15 human **meningiomas**
SO Neurochemistry: Cellular, Molecular and Clinical Aspects, [Proceedings of the European Society for Neurochemistry Meeting], 11th, Groningen, June 15-20, 1996 (1997), Meeting Date 1996, 913-917. Editor(s): Teelken, Albert; Korf, Jaap. Publisher: Plenum, New York, N. Y.
CODEN: 65STAK
AU Sottocornola, E.; Colombo, I.; Rapelli, S.; Berra, B.
AB The authors characterized the glycosphingolipid pattern in 15 human **meningiomas** and investigated a possible correlation between these patterns and the **glycosyltransferase** activities. Data suggest that some glycolipid species might have a possible role, as activator or inhibitor, in the regulation of the enzyme involved in their metab.

L5 ANSWER 34 OF 43 MEDLINE on STN
AN 1999406735 MEDLINE
TI Increased tumorigenicity and invasiveness of C6 rat **glioma** cells transfected with the human alpha-2,8 **sialyltransferase** cDNA.
SO INVASION AND METASTASIS, (1998-99) 18 (3) 142-54.
Journal code: 8202435. ISSN: 0251-1789.
AU Sottocornola E; Colombo I; Vergani V; Taraboletti G; Berra B
AB Gangliosides are thought to be involved in tumor cell proliferation, migration and invasiveness as so far demonstrated by the addition of exogenous gangliosides to the culture medium. To better understand the direct influence that alterations in ganglioside synthesis can exert on these functional aspects of cell biology, in the present study, we investigated the behaviour of C6 rat **glioma** cells after stable transfection with the human CMP-NeuAc:NeuAcalpha2-3Galbeta1-4GlcCer alpha2,8-**sialyltransferase** (SAT-II, EC 2.4.99.8) gene. The enzyme synthesizes ganglioside GD(3) by adding a sialic acid residue to ganglioside GM(3). Stable transfection of the constructs into C6 cells and expression of the human SAT-II gene were evaluated using PCR and RT-PCR amplification, respectively. Qualitative and quantitative analysis of the ganglioside profile was performed by conventional HP-TLC and

identity of de novo synthesized species was assessed by TLC immunostaining. Results show that whereas C6 parental cells and C6 cells transfected with the empty expression vector synthesize, almost exclusively, ganglioside GM(3), de novo synthesis of GD(3) is clearly observed in clones expressing the alpha2,8-**sialyltransferase**. Subcutaneous grafting in athymic nude mice of cells expressing high levels of GD(3) induces tumors growing faster and more aggressively than controls. In in vitro assays, the same cells demonstrate increased proliferation rate, motility and invasiveness. Chemotaxis and chemoinvasion were assayed using the modified Boyden chamber. Data obtained suggest that endogenously neosynthesized GD(3) is able to modify proliferation rate, motility and invasion of C6 rat **glioma** cells, enhancing the features of malignancy of this tumor cell line.

L5 ANSWER 38 OF 43 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1999:326058 CAPLUS
DN 130:336451
TI Gene therapy of tumors of the brain using genes for sialyltransferases
SO PCT Int. Appl., 84 pp.
CODEN: PIXXD2
IN Moskal, Joseph R.; Yamamoto, Hirotaka
AB Methods of treating tumors of the brain by gene therapy with **glycosyltransferase**, specifically **sialyltransferase**, genes are described. Specifically, glioblastomas are treated. The gene for .alpha.2-3 **sialyltransferase** was not normally expressed in mature astrocytes but was found in fetal astrocytes. The protein was found in vascular endothelial cells of normal human brain. Glial cells express the gene for .alpha.2-6 **sialyltransferase** at higher levels than do **glioma** cells. Human **glioma** cell lines expressing a rat .alpha.2-6 **sialyltransferase** cDNA showed decreased invasiveness using an in vitro invasiveness test and lowered tumorigenicity in vivo. These cells also showed lower adhesion to fibronectin and collagen type I without patterns of integrin biosynthesis being affected but with qual. changes in patterns of protein tyrosine phosphorylation and induction of focal adhesion kinase gene expression. Development of a replication-incompetent adenovirus expression vector for therapeutic use is described.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9924584	A1	19990520	WO 1998-US24224	19981112
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9915859	A1	19990531	AU 1999-15859	19981112
US 6566060	B1	20030520	US 1999-450195	19991129

L5 ANSWER 39 OF 43 SCISEARCH COPYRIGHT 2003 THOMSON ISI on STN
AN 2000:914265 SCISEARCH
TI Stable transfection of human beta-1,4N-acetylgalactosaminyltransferase and alpha-2,8-**sialyltransferase** cDNAs in C6 rat **glioma** cells induces modifications in ganglioside metabolism
SO EUROPEAN JOURNAL OF LIPID SCIENCE AND TECHNOLOGY, (NOV 2000) Vol. 102, No. 11, pp. 673-679.
Publisher: WILEY-V C H VERLAG GMBH, PO BOX 10 11 61, D-69451 BERLIN, GERMANY.
ISSN: 1438-7697.
AU Sottocornola E; Colombo I; Berra B (Reprint)
AB Ganglioside distribution in cells undergoes deep modifications during physiological and pathological events, possibly depending on the activity of **glycosyltransferases** involved in their biosynthesis. To understand how the ganglioside pattern can be altered by the selective expression of specific **glycosyltransferases**, C6 rat **glioma** cell line was stably transfected with two human **glycosyltransferase** cDNAs: beta -1,4N-acetylgalactosaminyltransferase (GalNAcT) and alpha -2,8-

sialyltransferase (ST-II). GalNAcT and ST-II are key enzymes in ganglioside biosynthesis; whereas ST-II synthesizes GD(3), precursor of the ''b'' pathway, GalNAcT produces GM(2), GD(2) and asialo-GM(2) and it is, therefore, involved in ''a'', ''b'' and ''asialo'' pathways. C6 cells were subjected to three independent transfections: one with a construct containing GalNAcT cDNA, one with a construct containing the ST-II cDNA, and one with both constructs simultaneously. Whereas control cells present mainly N-acetyl- and N-glycolyl-GM(3), selected transfected clones show more complex ganglioside profiles: GalNAcT-expressing cells are enriched in the ''a'' series gangliosides, ST-II-expressing cells synthesize the ''b'' series species, cells expressing contemporarily the two **glycosyltransferases** produce gangliosides of both series. Furthermore, among the selected clones, expression of GalNAcT and ST-II correlates with changes in the ST-I and ST-IV activities, indicating that the switching on of the biosynthetic enzymes we investigated influences the activity of endogenous **glycosyltransferases**, possibly through the modification of the amount of their substrates or products.

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